

Elective - Nanotechnology

QP Code : 15324

(3 Hours)

[Total Marks :100]

- N.B.**
- (1) Question No. 1 is **compulsory**
 - (2) Attempt any four questions from Q-2 to Q-7.
 - (3) Draw **neat sketches** wherever **applicable**
 - (4) Figures to **right** indicate **full** marks.

1. Attempt any **four** from the following :- 20
 - (a) How optical property of material change as they fall to nanoscale?
 - (b) Draw a rough sketch and explain essential components of XRD.
 - (c) How nanomaterials are classified?
 - (d) Explain different approaches used in synthesis of nanomaterials.
 - (e) What is nanotribology?
 - (f) Explain the concept of nanomechanics
 - (g) Write short note on Nanosensors.
2.
 - (a) What is Microelectronics? What are its applications and future impact? 10
 - (b) How nanotechnology is being used to diagnostic and therapeutic applications? 10
3.
 - (a) What are nano-ethics? Explain giving suitable examples. 10
 - (b) Draw a rough sketch and explain working of optical microscope. How is it different from electronic microscope? 10
4.
 - (a) Explain the concept of Nano business. Which areas of technology are benefited due to the progress in nanotechnology? 10
 - (b) How nanotechnology can help to get cleaner environment? 10
5.
 - (a) Draw a rough sketch and explain working of TEM. Explain the relevance of TEM to the field of Nanotechnology. 10
 - (b) With suitable examples explain the concept of Photonics. 10
6.
 - (a) Draw a rough sketch and explain working of UV- Visible spectrophotometer. How UV-Visible spectrophotometer is useful in the study of nanotechnology? 10
 - (b) Why CNTS are useful nanomaterials? Explain how CNTS are prepared by Laser method. 10
7.
 - (a) How smarter Computers can be built using nanotechnology? 10
 - (b) Draw a rough sketch of Infra red spectrophotometer and explain its working. Explain its significance in the characterization of nanomaterials. 10